to determine what tasks were conducted by pharmacy staff and how much time was spent in the preparation of the top fifteen chemotherapeutic drugs and regimens used across the four sites. Pharmacy staff was observed as to the time spent in each task relative to the total time in an average shift to determine the proportion of total work hours dedicated to the preparation of the selected chemotherapy drugs. **RESULTS:** The total average fixed costs for the preparation of chemotherapy doses across all sites was $36.03 (range $32.08 for Virginia and $67.19 for Utah). Data from the four centers was projected to the 3,990,495 million estimated chemotherapy infusions administered to a national Medicare population in 2003 resulting in a total annual cost to Medicare for chemotherapy preparation of $143,777,535. Pharmacists were observed to spend the majority of their day (90% or higher) on tasks directly related to the preparation of these agents. **CONCLUSIONS:** Preparation costs for chemotherapy are significant and need to be considered in determining reimbursement rates for administration.

PCN29

PER-PATIENT COST OF HOSPITAL CARE FOR ADVANCED BREAST CANCER IN THE UK BASED ON A PATIENT-LEVEL RESOURCE UTILISATION DATASET

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OBJECTIVES: To estimate the per-patient cost of hospital care associated with the treatment of breast cancer recurrence in the UK. **METHODS:** Patient-level resource utilisation data for 571 node-positive early breast cancer patients treated at the Western general Hospital, Edinburgh between 1991 and 2004, of whom 180 experienced disease recurrence, were analysed in order to provide estimates of the cost of hospital care post-relapse. Unit costs from national sources were applied to patient-level resource use data for hospital care collected over a period of five years post-relapse. The total cost was estimated by bootstrapping (1000 simulations; with replacement). **RESULTS:** Of the 180 patients who experienced a relapse, 145 (81%) died within follow-up, 143 of these due to breast cancer. The first relapse was distant in 145 patients and locoregional in 35 (25 of which experienced a subsequent distant disease and 3 experienced further locoregional recurrence within follow-up). The bootstrap mean cost post-relapse (and 95% confidence intervals) was £14,085 (£12,370–£15,877) for patients whose first relapse was distant and £14,575 (£11,411–£17,872) for patients whose first relapse was locoregional. Comparison with previous published estimates suggests that the cost of chemotherapy treatments has increased substantially in recent years. **CONCLUSIONS:** Hospital costs for patients with relapsed breast cancer may be higher than previously estimated, perhaps due to recent increases in the costs of chemotherapy agents. Costs for patients whose first relapse is locoregional are similar on average to that for patients whose first relapse is distant, as many have subsequent locoregional or distant relapses.

PCN30

COMPARATIVE ANALYSIS OF DRUG COST OF BREAST, CERVICAL AND COLORECTAL CANCER IN HUNGARY

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OBJECTIVES: The aim of this study is to calculate the market share of drug cost from the total health insurance cost of treatment of breast, cervical and colorectal cancer. DATA AND **METHODS:** Data derives from the central, nationwide database of the Hungarian National Health Insurance Fund Administration (OEP) covering the year 2001. The cost of treatment includes the cost of outpatient care, the acute and chronic inpatient care, the (subsidies) of medicines' prices (reimbursement) and the expenditure on disability to work. The subsidies of drugs include the following ATC codes: "L" (Antineoplastic and immunomodulating agents), "N02" (Analgesics) and "A04" (Antiemetics and antineuseants). The diseases were identified with the following ICD (International Classification of diseases): breast (C50, D05, D24), cervix (C53, D06, D26.0) colorectal (C18, C19, C20, C21, D01.0, D01.1, D01.2, D01.3, D01.4, D12). **RESULTS:** The total health insurance cost of treatment of breast cancer was around 33.4 million € (8.6 billion Hungarian forint) in 2001. The total health insurance cost of treatment of cervical cancer was around €4.1 million (1 billion Hungarian forint) in 2001. The total health insurance cost of treatment of colorectal cancer was around €38.871.666 (9.98 billion Hungarian forints) in 2001. The drug cost of breast cancer was €9.45 million, cervical cancer €0.62 million and colorectal cancer was €4.86 million. The market share of drug reimbursement cost from the total health insurance cost was the following: breast cancer (28.3%), cervical cancer (15.4%), colorectal cancer (12.5%). **CONCLUSIONS:** The health insurance reimbursement of drugs varies in different types of cancer. The drug costs represent the highest cost element in breast cancer compared to cervical and colorectal cancer.

PCN31

COST EFFECTIVENESS MODEL OF IV BISPHOSPHONATES IN THE PREVENTION OF BONE COMPLICATIONS IN BREAST CANCER PATIENTS WITH BONE METASTASES: A GERMAN INPATIENT PERSPECTIVE

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OBJECTIVES: Intravenous (IV) bisphosphonates reduce skeletal related events (SREs) and alleviate bone pain in patients with breast cancer and bone metastases (BCBM). However, these agents differ in terms of efficacy, administration time and costs. We compared the cost-effectiveness of IV bisphosphonates from a German inpatient perspective. **METHODS:** A 7-year literature-based model was designed to simulate the natural history, costs and quality-adjusted life expectancy (QALE) of 4 hypothetical cohorts of BCBM patients receiving no treatment (NT) or monthly IV ibandronate (IB), pamidronate (PA) or zoledronic acid (ZA). The model included probabilities of death and disease progression and the risk of SREs. The risk reduction in SREs with each bisphosphonate was estimated using the Andersen Gill hazard ratio v. NT (0.71 for IB, 0.70 for PA, and 0.56 for ZA). The model included direct medical costs for drugs, IV administration and SREs. Survival was adjusted for the time spent with and without SREs and on and off therapy to capture the bisphosphonates' impact on QALE. All outcomes were discounted at 5% per annum. **RESULTS:** The cumulative number of SREs over the 7-year simulation was lowest for ZA (3.53 per patient), followed by PA (4.17), IB (4.21) and NT (5.80). Average QALE was highest with ZA (1.10), followed by PA (1.09), IB (1.09) and NT (0.92). Total per-patient costs were lowest for ZA (€15,520), followed by PA (€16,968), NT (€17,317) and IBN (€17,881). In probabilistic sensitivity analyses, the 95th percentile value for the cost per QALY saved was €15,600 (ZA), €84,000 (IB), and €87,500 (PA). ZA, PA and IB were cost savings

vs. NT in 79%, 56%, and 36% of model runs, respectively. **CONCLUSIONS:** For the management of BCBM patients, ZA is the preferred bisphosphonate as it is more effective and less expensive than other IV agents or even no therapy.

PCN32

COST-EFFECTIVENESS ANALYSIS OF LETROZOLE VERSUS TAMOXIFEN AS INITIAL ADJUVANT THERAPY IN HORMONE-RECEPTOR POSITIVE POSTMENOPAUSAL WOMEN WITH EARLY BREAST CANCER IN THE UK

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OBJECTIVES: The primary core analysis of the BIG 1–98 study showed that in postmenopausal women with hormone receptor positive (HR+) early breast cancer, the aromatase inhibitor (AI) letrozole (LET) significantly reduced the risk of recurrence by 19% overall (95% CI 7–30%) and the risk of relapse in distant sites by 27% overall (CI 12–40%) compared with tamoxifen (TAM). Letrozole demonstrated non-significant improvements in overall survival and contralateral breast cancer. LET patients had reduced risks of endometrial cancer and venous thromboembolism (VTE), but increased risks of mild/moderate hypercholesteraemia, cardiac events and fractures. This study reports the cost-effectiveness of initial adjuvant therapy with LET vs. TAM in postmenopausal women with HR+ early stage breast cancer from the UK NHS perspective based on preliminary analyses of published results of the BIG 1–98 trial. **METHODS:** A Markov model describes the occurrence of contralateral tumours; locoregional recurrence; soft tissue, bone, and visceral metastases, and treatment side effects (endometrial cancer, VTE, hip fractures, other fractures, hypercholesterolaemia, and MI). Clinical parameters for TAM were based on published results of the BIG 1–98 trial and other published studies, as were health-state utilities. Corresponding probabilities for LET were calculated by applying RRs for LET vs. TAM from the BIG 1–98 study. Costs of breast-cancer care were estimated using UK patient-level resource use data. Lifetime costs (2004UK£) and QALYs were estimated for HR+ women aged 61 years at diagnosis, discounted at 3.5% annually. **RESULTS:** Compared with TAM, LET results in an additional 0.33 QALYs (12.84 vs. 12.51). These benefits are obtained at an additional cost of £4079 (£12,474 vs. £8395). Cost-effectiveness of LET vs. TAM is £12,321 (95% CI £2672-£23,889) per QALY saved. **CONCLUSION:** Adjuvant treatment with letrozole is cost-effective from a UK NHS perspective compared with tamoxifen and should be considered in women diagnosed with HR+ early breast cancer.

PCN33

COST-UTILITY ANALYSIS OF CHEMOTHERAPY IN ADVANCED OR RECURRENT GASTRIC CANCER: ORAL FLUOROPYRIMIDINE TS-1 VERSUS CONVENTIONAL INTRAVENOUS CHEMOTHERAPY

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OBJECTIVE: TS-1 is a newly developed oral anticancer drug. We previously reported the treatment costs for gastric cancer in Japan and suggested that TS-1 is cost saving compared to conventional intravenous chemotherapy. The aim of this study is to examine health utilities in gastric cancer patients and to assess the cost-utility of TS-1. **METHODS:** Patients with advanced or recurrent gastric cancer who were able to ingest meals were identified retrospectively from the ordering system database of Showa University Hospital between January 1998 and July 2001. The utilities of the patients during chemotherapy were assessed by oncology pharmacists on the basis of medical records (including information on mobility, meal ingestion, pain, and other symptoms), using the rating scale method, time trade-off method, standard gamble method and EQ-5D mapping procedure. The costs of the patients were calculated on the basis of hospital billing data. Cost-utility analysis was conducted from a societal perspective. **RESULTS:** Of the 23 patients who met the inclusion criteria, 13 received TS-1 and 10 received conventional intravenous chemotherapy. Mean (SD) utilities as measured by the rating scale method, time trade-off method, standard gamble method and EQ-5D mapping procedure were 0.89 (0.12), 0.90 (0.11), 0.94 (0.07), and 0.84 (0.18), respectively, in the TS-1 group. The corresponding utilities in the conventional intravenous chemotherapy group were 0.65 (0.18), 0.66 (0.18), 0.81 (0.12), and 0.52 (0.23), respectively. The utilities of the TS-1 were significantly ($P < 0.05$) higher than those of conventional intravenous chemotherapy by every technique. The mean monthly cost during chemotherapy was significantly lower in the TS-1 group than in the conventionalintravenous chemotherapy group (€2481 vs. €6458, $P < 0.05$). **CONCLUSION:** TS-1, an oral anticancer agent, is a dominant strategy with a lower cost and a greater health outcome than conventional intravenous chemotherapy in patients with advanced or recurrent gastric cancer.

PCN34

COST-EFFECTIVENESS OF ANASTROZOLE OVER TAMOXIFEN IN POSTMENOPAUSAL WOMEN WITH EARLY BREAST CANCER FROM A UK NATIONAL HEALTH SERVICE PERSPECTIVE: THE 5-YEAR COMPLETED TREATMENT ANALYSIS OF THE ATAC TRIAL

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OBJECTIVES: In the Arimidex, Tamoxifen Alone or in Combination (ATAC) trial, anastrozole produced significantly longer disease-free survival and time to recurrence compared with tamoxifen in hormone receptor-positive (HR+) postmenopausal women with early breast cancer after 5 years of treatment. (ATAC Trialists' Group. Lancet 2005;365:60–2) Based on these ATAC results, the cost-utility of anastrozole versus tamoxifen is estimated from the perspective of the UK National Health Service (NHS). **METHODS:** A Markov model and Weibull survival curves fitted to trial data were used to project 5-year outcomes from the ATAC trial to an actuarial time point of 25 years. Resource utilisation data were obtained primarily from a physician survey. Unit costs (2003–4 UK£) were obtained from routine NHS sources. Utility scores for relevant health states were obtained from 26 representative UK patients, using a standard gamble technique. Costs and benefits were discounted at the annual rate of 3.5%. All effectiveness and cost parameters subject to uncertainty were varied in a probabilistic analysis. Incremental cost effectiveness ratios (ICERs), 95% CIs, and acceptability curves were calculated. **RESULTS:** The estimated 25 year ICER of anastrozole compared with generic tamoxifen was £7811 (£219–31,438) per QALY gained with a probability of the order of 90% that it lies below £20,000 per QALY gained. The results were sensitive to the time horizon of the model and